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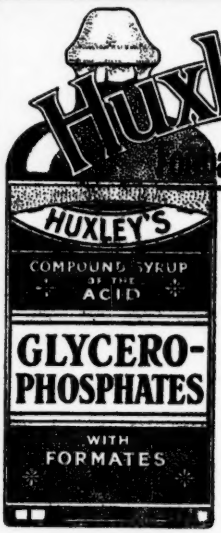

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"Scire est nescire, nisi id me
Scire alius sciret."

SEPTEMBER, 1920.

FAMINE-DROPSY AS A FOOD-DEFICIENCY DISEASE.*

BY

J. A. NIXON, C.M.G., M.D., F.R.C.P.,

Physician to the Bristol Royal Infirmary; Consulting Physician to the Bristol Guardians at Southmead Hospital; formerly Consulting Physician to the British Armies in France and to the Army of the Rhine.

UNDER the names of War Œdema and Hunger Œdema an old form of dropsy was described during the Great War as a new disease. Dropsy had been recognised as the result of under-feeding and famine since the time when the soldiers of the French Army before Naples in 1528 had crawled about with pallid visages, swelled legs, and bloated bellies.[1] It had been recorded in besieged towns, in ships making long cruises and in famine-stricken countries. Great confusion had existed until recent times between famine-dropsy, scurvy and beriberi. Cornish described the condition with great accuracy as occurring in the Madras jails in 1864,[2] and again in the Indian famine of 1877–8.[3]

* A paper read at the meeting of the Bristol Medico-Chirurgical Society on May 12th, 1920.

During 1915 outbreaks occurred in German prison camps in association with various epidemic diseases, such as relapsing fever, dysentery and typhus. At the same time it was observed among the famine-stricken populations in Galicia and Poland. From a recently-published report it is evident that the earliest appearance of famine-dropsy during the War was at Lille in October, 1914.[4] The unhappy town was in German occupation, and the inhabitants were suddenly stripped of everything, so that many of them had nothing to eat except potatoes. This diet produced many cases of a general anasarca unaccompanied by albuminuria. My own experience of the disease was derived from seeing a number of slight and a few severe cases amongst released prisoners of war who were making their way back to France immediately after the Armistice, or who were found in the hospitals of the re-occupied portions of France and Belgium during the advance of the Fourth Army.

In this paper, necessarily much compressed, I have tried to give a short description of famine-dropsy. A fuller and comprehensive discussion of the disease in all its aspects will shortly be published in the medical history of the war.

The disease may be defined as a form of dropsy associated with bradycardia, polyuria and asthenia, which occurs in persons subjected to prolonged underfeeding. It is unattended by albuminuria, cardiac dilatation or neuritis. It affects more particularly men who are called upon to perform hard physical work whilst their daily food ration contains from 800 to 1200 calories. These calories are as a rule embodied in a largely fluid diet which comprises 15 per cent. or more of indigestible cellulose with very little fat and a maximum daily allowance of 50 grammes of protein.

The onset is gradual, with a few days' malaise, during which the patient complains of little beyond great lassitude, physical weakness, headache, and a noticeable increase in the

quantity of urine passed. Then the feet and ankles begin to swell. The œdema commences in the dependent parts and spreads to the limbs and trunk. Sometimes it involves the whole body, including even the face and hands. Ascites, hydrothorax and hydropericardium are of frequent occurrence. The skin assumes a pale yellow tint and muscular wasting may be extreme. There is usually very marked apathy.

At the first onset of œdema a remarkable polyuria is invariably observed. It takes the form of nocturnal frequency sufficient to interfere seriously with sleep. In the more apathetic patients enuresis is common.

When with appropriate treatment the dropsy disappears the emaciation becomes obvious. This emaciation is an integral part of the disease, and is always very great. It corresponds with the total loss of subcutaneous and other fat revealed by autopsy, and is a main point of distinction between famine-dropsy and that due to renal or cardiac disease. The heart's action becomes very slow. Extreme bradycardia without irregularity occurs in almost all cases; the rate is usually between 40 and 50 per minute, but a rate of 26 has been recorded. This bradycardia is of sinus origin. The heart sounds are faint and muffled. Sometimes a soft hæmic bruit is heard over all the valvular areas. The pulse is small and feeble, the blood-pressure low (90–100 mm. Hg.). The lungs are as a rule normal, unless there is some complicating broncho-pneumonia or hydrothorax. Dyspnœa, cyanosis and signs of failing pulmonary circulation are conspicuously absent. The liver and spleen are not enlarged.

There are no changes referable to the nervous system such as characterise beriberi. Although scorbutic manifestations may be present, they are not part of the famine-dropsy, but rather of a co-existing scurvy. The same is

true of the skin changes of pellagra, which do not appear in uncomplicated cases of famine-dropsy. The temperature is normal or subnormal. Fever if present depends upon some complication. Diarrhœa is a symptom so constantly present as to raise the question whether it may not play a part in causing the disease. There seems some relation between the indigestible residue of the food and the diarrhœa. But it is quite certain that famine-dropsy can occur in an outbreak in which diarrhœa is totally absent.

The renal functions seem to be normal. The changes in the urine are probably due to variations in the intake. Suppression of urine is never seen with true famine-dropsy; on the contrary, polyuria is the rule. The polyuria probably depends on polydipsia, with which it goes hand in hand. No albumin, casts or sugar are present. As regards mineral constituents, most observers agree that there is a marked increase in the chlorides, but this may be due to an increased intake: in prison camps men used to add large amounts of common salt to the thin soups to try to give some flavour to them. Calcium phosphates and magnesium show less variation from the normal.

The nitrogen balance is undisturbed. The excretion of urea is low, but improves with the addition of protein to the diet. Ammonia-nitrogen and kreatin are increased as in all forms of starvation with disintegration of the tissue-proteins. Amino-acid-nitrogen and kreatinin sometimes show a slight and variable increase. Urates are as a rule increased in the early stages. Acetone has occasionally been found in the urine.

In the blood hydræmia is constantly present, but does not correspond with the degree of œdema. The red-cell count may vary within wide limits. Usually there is a moderate degree of oligocythæmia (3 to 5 million). The hæmoglobin index is normal. In cases with less than three

million erythrocytes cell-changes have been observed: basophilic granules with polychromatophilia, a slight poikilo- and aniso-cytosis and in a few cases normoblasts.

Leucopenia is generally present, the number of leucocytes commonly being between 2,000 and 8,000 per c.mm. Where the count rises above 8,000 some complication may be suspected. There is a relative decrease in neutrophiles and an increase in mononuclears, chiefly the large mononuclears, of which the proportion may reach 55 per cent. These cells frequently attain a very large size, and may contain numerous coarse basophile granules. Eosinophiles and basophiles are often increased.

There is a constant and definite fall in the total proteins of the blood-serum, which shows the same variations in its nitrogen constituents as the urine. The fat-content of the serum remains normal. The lipoid-phosphorus is greatly decreased, whilst the acid-phosphates are increased. The lecithin content of the erythrocytes is diminished and the cholesterin unchanged.

To sum up: there are no changes in the composition of the blood and urine which cannot be explained as the normal outcome of deficiencies and excess in the food-constituents.

Pathogenesis.—We meet with many difficulties, however, when we try to explain why one form of starvation should produce dropsy whilst another does not. Complete starvation leads to death in eight or ten days without the appearance of dropsy. Certain forms of inanition are, however, associated with œdema. We see this not infrequently in acute dysentery and in the last stages of phthisis. As Edgeworth observed in describing the death of five out of six infants in one family with general œdema following upon diarrhœa, "it is well known that dropsy, especially of the face and extremities, may occur

in infants suffering from chronic diarrhœa without albuminuria."[5]

The essential conditions which lead to famine-dropsy pure and simple are well established, namely prolonged under-feeding with a largely fluid diet poor in calories, deficient in protein and fat. Climate plays some part; exposure and fatigue hasten the onset of dropsy. Previous illnesses, such as diarrhœa and dysentery, so constantly precede it, that at one period of the war it was suspected that the disease might be due to an intestinal infection. In the Great War it was seen that in a given community fed on the same ration more cases occurred in cold weather than in warm. But the Indian famine of 1877–8 (when Cornish first recognised famine-dropsy as a definite entity differing from beriberi and scurvy) demonstrated that famine-dropsy can occur in hot climates as well as cold.

The ingestion of fluid in large quantity is a contributing factor. The German ration for prisoners was given almost entirely in the form of soup, to which a large amount of salt was added. An excess of sodium chloride is not essential to the production of this form of dropsy, as I have seen it occur in a patient in hospital whose intake of salt was infinitesimal.

In civil populations of famine-stricken districts it always affects the poorest of the poor first and in greatest numbers. Men between the ages of 40 and 50 develop the disease most readily, women and children less readily, and then only in such households as live in the direst poverty. The idea that certain foodstuffs evoke the disease is disproved. The rapidity with which the œdema can disappear if the diet is improved suggests that if toxic elements play any part in its causation they cannot be very potent, nor their effects very long-lasting. It is more probable that some nutritional defect alters the permeability of the capillary walls. Recent

investigations tend to the view that in all forms of œdema some local damage to the capillary endothelium exists. So far as famine-dropsy is concerned no histological evidence has been obtained of damage to the capillary walls. It has been suggested that the deficiency of lipoids in the blood may affect the permeability of the vessel walls. For this lipoid deficiency the absence of fats from the food must bear the principal blame, but it does not follow that a mere absence of fat from the food is the sole cause of the œdema.

Cornish in his observations on prison dietaries and Indian famines persistently attributed the appearance of dropsy to inadequate nitrogenous rather than non-nitrogenous food. Denton and Kohman [6] have stated that dropsy occurs in rats fed on a carrot diet, when the proportion of nitrogen is reduced by the addition of some non-nitrogenous food stuff, such as fat or starch. Kohman [7] found, moreover, that the mere addition of fats, or fat-soluble A, or increase in the salt-content of the diet had no noticeable effect on the occurrence of œdema. But there was more marked œdema when there was much water in the diet than when the animals were on a dry diet. Maver [8] has confirmed these observations, and concludes that the disease is not a specific "vitamine-deficiency" disease, but is in a broader sense a "food-deficiency" disease, resulting from a protracted existence on a diet poor in total calories, and especially poor in protein.

Apart from toxic or nutritional damage to the capillary walls, which may be the result of prolonged under-feeding, there are other possible factors to be considered.

Firstly, there is the altered composition of the blood, which exhibits hydræmia, hypo-albuminosis and deficiency of lipoids. There may be in consequence an increased passage of fluid through the capillary wall. But the blood

changes appear to be of too slight a degree; moreover, this theory is not compatible with the rapid resorption of the œdema.

Secondly, there is the hypothesis that the tissue cells, being damaged by nutritional defects, become capable of excessive imbibition of water (Fischer's theory of œdema). There is no evidence in support of this theory, while the fact that the fluid gravitates from one part to another, and can sometimes be drained off by hollow needles, proves that cell-imbibition is not the essential factor.

Thirdly, there is the theory that the endocrine glands (thyroid or adrenals) control the water economy. Several observers are engaged in investigating this theory at the present time, but little more can be said than that they are so engaged.[9] The influence of the endocrine glands upon sugar metabolism encourages the conjecture that some similar influence may be discovered in connection with the water economy.

Other causal factors have been suggested which may be briefly considered.

Can the mere excess of fluid in the diet account for the dropsy? Undoubtedly it cannot. Life can be supported without the appearance of dropsy on a fluid diet provided there is a sufficiency of protein, calories, and vitamines. In the polydipsia and polyuria of diabetes mellitus and insipidus the mere ingestion of fluid does not produce dropsy.

Is the cause to be found in an excessive intake of sodium chloride? Although an excess of sodium chloride may have been a contributory factor amongst prisoners of war, Harden and Zilva's experiments have proved that it is not essential to the production of famine-dropsy.[10]

Morbid Anatomy.—The post-mortem appearances which were first observed and recorded by Porter in the Indian famine of 1877–8 are striking and relatively simple.[11] There

is a total absence of fat throughout the whole body. At the normal sites for fat deposits, in the subcutaneous tissues, in the omentum and mesentery, about the kidneys and on the heart, fat is replaced by œdema, giving rise to a translucent gelatinous tissue. Hydropericardium, hydrothorax, and ascites are frequently present.

The heart is in all cases greatly atrophied; the muscle is pale and flabby, exhibiting histologically the changes of brown atrophy. Hypertrophy and dilatation do not occur, the valves remain healthy and competent. The lungs appear small, retracted, anæmic and soft, excepting when broncho-pneumonia and pulmonary œdema occur. The liver is, as a rule, small and, like the kidneys and spleen, pale and soft. Fat and glycogen are absent from the liver cells. The kidneys are healthy, with intact epithelium and tubules. Histologically not only is fat absent from the tissues of all organs and muscles, but the muscle fibres, like the liver cells, are totally devoid of glycogen.

Evidences of concurrent or intercurrent disease are frequently met with, particularly tuberculosis and inflammatory or ulcerative affections of the large intestine. So commonly was some colitis found, that many observers suspected that some specific infection was the cause of famine-dropsy, or that mechanical irritation of the alimentary tract played a part. Maase and Zondek record, however, a group of cases of famine-dropsy without diarrhœa. There is evidence also that the disease is not communicable by contagion.

Diagnosis.—Briefly, the diagnosis rests upon a syndrome of four cardinal symptoms: œdema, polyuria, bradycardia, asthenia. There is a noteworthy absence of certain symptoms which frequently accompany other forms of dropsy: cyanosis, dyspnœa, cardiac dilatation, albuminuria.

Unless famine-dropsy is complicated (as often happens)—

by beriberi, no nerve changes will be found;

by scurvy, no scorbutic changes (spongy gums, hemorrhages) will be found;

by pellagra, the characteristic skin lesions and mental changes seen in pellagrins will be absent.

In the present state of our knowledge it is impossible to say whether the so-called "inanition dropsies" seen in such diseases as phthisis, dysentery, and cancer are or are not identical with famine-dropsy.

Ankylostomiasis presents great difficulty in differential diagnosis, but the presence of profound anæmia with considerable eosinophilia will suggest the necessity for careful examination of the fæces for occult blood and the hook-worm ova.

Prognosis.—The prognosis in uncomplicated famine-dropsy is good provided that treatment, in the form of improved diet, can be given. The prospect of rapid and complete recovery is best in young subjects, in those who come earliest under treatment, and in those who are free from any other disease. Old people, infants, and tuberculous subjects fare worst. The mortality is greater in men than in women. The death-rate in persons over 40 years of age has been estimated at 18 per cent., in children between three and four years old at from 22 to 33 per cent.

Von Jaksch's figures deal with the largest total collected by any observer.[12] He records 1,028 deaths out of 22,842 cases, a mortality rate of 4.5 per cent.

Uncomplicated cases begin to recover within 48 hours if kept warm in bed with an increased diet; but relapses are common when the patient first gets up and exerts himself. It may be some weeks before a patient can get up without some slight return of the œdema.

Treatment.—The cure of famine-dropsy is simple. Rest in bed, warmth, and a diet rich in carbohydrates appears to cure most cases in a short time. Emphasis must be laid, however, on the latest researches, which prove that an adequate protein content is no less essential to the dietary than an adequate supply of calories.

The diet at first must be light, easily digested, and given in small quantities as in any case of starvation. The amount of liquid and of common salt should be limited. Attention must be paid to any other disease that may be present. Relapses of diarrhœa are in particular apt to be troublesome. The simplest and most compact remedy for famine-dropsy has been found to be cod liver oil.

The prevention of the disease is solely a matter of adequate diet.

Conclusions.

1. Famine-dropsy (also called Hunger Œdema and War Œdema) is a form of dropsy associated with bradycardia, polyuria and asthenia.

2. It occurs as the result of prolonged under-feeding, and its appearance is accelerated by physical exertion and exposure to cold.

3. It is a condition independent of renal or cardiac disease, also of beriberi, scurvy, or pellagra.

4. The evidence at present available points to the conclusion that the deficiency is not that of a single food factor, but rather to a combined deficiency in protein and in calories. There is a possibility, moreover, that an excessive intake of fluid in the diet is essential to the production of œdema.

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VESICAL CALCULUS IN A URINARY TYPHOID CARRIER.

BY

DUNCAN WOOD, F.R.C.S.,

Visiting Surgeon, Bath Pensions Hospital; Surgical Registrar, Bristol General Hospital.

THE bacterial causation of urinary calculi is well recognised in the so-called secondary stones such as the triple phosphates. In these cases the bacteria split up the urea, turning the urine

alkaline and ammoniacal, and precipitating crystals of triple phosphates and of calcium carbonate.

The etiology of the primary calculi of calcium oxalate and uric acid is not so clear. Their bacterial origin has been suggested, but very few cases have been published which throw light on the subject. The following is recorded with a view to increasing our knowledge on this subject.

A.B., a male, age 25, was working as a schoolmaster before the War. In November, 1914, he was inoculated twice with typhoid vaccine with an interval of ten days between the two injections. In November, 1915, he was taken ill at Lemnos, with diarrhœa and passing blood in the stools. He also had marked frequency of micturition, to such a degree that if he stood up he had incontinence of urine. He did not notice any blood in his urine at this time.

In December, 1915, he was labelled "nephritis" and invalided to England. On arrival he was found to have typhoid bacilli in his urine. He was treated with dieting and urotropine. Between January and March, 1916, he received eight injections of typhoid vaccine. Between March and August, 1916, sixteen attempts to find the typhoid bacilli in the fæces were all negative. In May, 1918, typhoid bacilli were still present in the urine. During the following eight weeks he had six inoculations with an autogenous paratyphoid A. vaccine. He was also given urotropine gr. v. three times a day by the mouth. At the end of this course typhoid bacilli were still present in the urine. In the summer of 1918 he first noticed blood in the urine. The hæmaturia appeared in attacks lasting a few days at a time.

In January, 1920, the hæmaturia became continuous; the blood was bright in colour and appeared at the end of micturition. Pain was present during micturition, worse at the end of the act and referred to the end of the penis. At no time was there pain in the loin, either dull or sharp in character. The frequency was every two hours during the day and twice at night. In February, 1920, a stone was felt with a sound. The X-ray showed a stone in the bladder, none in either kidney or ureter. The urine was sp. gr. 1020, acid, containing a trace of albumen and, microscopically, a few red-blood corpuscles and leucocytes. B. typhosus was grown from a catheter specimen of the urine, but the fæces were negative. There was no fever. Cystoscopy showed no changes in the bladder wall.

February 14th, 1920, suprapubic cystotomy was performed and the stone removed. The incision in the bladder wall was

closed by two layers of catgut, and a rubber glove drain inserted in the prevesical space. Slight leakage of urine occurred on the fifth day, but the wound rapidly healed. The stone was 2 cm. by 1.5 cm. in size, mulberry shaped, and chemically consisted of calcium oxalate. It was placed in 1 in 20 carbolic acid for one hour, was then washed in sterile saline, cut across aseptically, and a culture taken from scrapings from the centre of the stone. The culture grew b. coli. Treatment with urotropine gr. x. three times a day was continued.

On February 27th, 1920, B. typhosus was still present in the urine. On March 19th, 1920, a culture was negative. On April 10th, 1920, the culture was positive. On May 2nd, 1920, culture taken from urine from right kidney was negative. Agglutination of blood for B. typhosus 1 in 50 ; for B. paratyphosus A. 1 in 1000 ; for B. paratyphosus B. negative. On July 1st, 1920, treatment with urotropine was stopped. On August 3rd, 1920, a culture of urine from the bladder was negative, also from the left kidney.

It appears from the original diagnosis of the disease that the onset was associated with an acute nephritis. No casts have been found in the urine during this year. A febrile albuminuria is commoner, and this would allow the bacilli to pass through the kidneys. Osler states that typhoid bacilluria occurs in about 30 per cent. of all cases in the acute stage. Judging from the agglutination results, the infecting organism in this case was the B. paratyphosus A. Webb Johnson found that B. paratyphosus B. was more frequently the cause of cystitis than the other organisms of the group. In this case the infection has not been localised to either kidney. Webb Johnson points out that even if it can be localised to one kidney, it may merely be that it is more permeable to typhoid bacilli than the other kidney. He suggests that the foci which harbour the disease are the bone marrow and the spleen.

Was the stone formed in either kidney ? It is generally considered that calcium oxalate calculi are renal in origin, but this patient has never had pain in his loins, nor renal colic. The difficulties surrounding the final cure of these patients have been pointed out by Davies and Walker Hall, in whose

case the patient was free from bacilluria for three months, and then recurrence occurred.

In conclusion, my thanks are due to Dr. Waterhouse for the bacteriology in this paper.

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POISONING BY " MUSTARD " GAS.

BY

E. H. E. STACK, F.R.C.S., Capt., R.A.M.C.(T.F.),
Ophthalmic Surgeon, Bristol Royal Infirmary; Surgeon, Bristol Eye Hospital;

CAREY F. COOMBS, M.D., F.R.C.P., Capt., R.A.M.C.(T.F.),
Physician with charge of Out-Patients, Bristol General Hospital; Honorary Consultant in Cardio-Vascular Cases, Ministry of Pensions, S.W. Region;

AND

R. ROLFE, B.A., M.B., B.Ch. Cantab.

THIS paper consists of three parts. The first, compiled in 1917 in France by two of us (E. H. E. S. and C. F. C.), was not published at the time because of military considerations. The second part, written by one of us (R. R.) describes experiences of accidents incidental to the manufacture of " mustard " gas. The third part deals with some of the sequelæ of " mustard " gas poisoning as observed by one of us (E. H. E. S.) up to the present time. We think that our remarks may be opportune, since the public prints tell us of " mustard " gas shells being emptied of their contents in different parts of the country. This fact, together with the

possibility that the gas may have to be manufactured again some day, makes it necessary to draw the attention of the profession and of all concerned to the need for precautions in the handling of the compound.

Part I.

On the night of July 25th, 1917, 40 patients were admitted to No. 56 General Hospital suffering from gas poisoning of a new type, and three nights later 27 more were admitted. Owing to the prevalence of eye symptoms among them they were principally under the care of one of us (E. H. E. S.), while the other (C. F. C.) was told off by Col. J. Paul Bush, C.M.G., O.C. No. 56 General Hospital, to collect general data. The earlier part of this paper is taken from our report to Col. Bush, presented on Aug. 3rd.

Of the first batch of 40 men all had been gassed at Armentières between the 21st and 24th July, the source of the gas being enemy shells in every case. The second batch all came from Ypres; the majority had been gassed between 12th and 16th July.

Taking the 67 men together, we found that 23 were gassed only while in the open, the same number only while in cellars or dug-outs, 4 were gassed both in the open and in dug-outs, while the remainder (7) were not sure about the source. Gas helmets were used in 53 instances, the remainder consisting of men gassed in their sleep, and others who stated that they received no orders to put on helmets. Most of those who put on helmets thought that they failed to protect because they were taken off too soon under the mistaken impression that the gas had disappeared.

Of the men gassed in dug-outs several stated that there was no adequate protection against gas. In others the shell either entered the dug-out or destroyed its protection.

An extraordinary series of similes was offered when the

men were asked what the gas smelt like, the general impression being that it was a bad smell, and the most popular comparisons being to some kind of vegetable decay.

The symptoms produced by the gas (which are now well known) were those of irritation of eyes, nose and stomach. In all but two cases there was eye irritation with lachrymation as a first symptom. Unlike the effects of lachrymatory gas, however, these did not follow gassing until after an appreciable interval, varying from 1 to 48 hours, and averaging nearly 7½ hours. Symptoms of nasal irritation occurred in 62 cases and headache in 56. Fifty-seven of the men vomited or retched, the average interval between gassing and the onset of this symptom being about 6½ hours. The throat became sore in 59 cases, the earliest symptom being felt on an average about 16 hours after gassing. In addition to these there were skin symptoms, to be referred to presently.

When the patients were admitted the symptoms were as follows:—

Conjunctivitis was present in all except 3, amounting to no more than a pinkness in the majority. In a similar number lachrymation was still present, and severe and purulent in a few. Photophobia was complained of by 56. The cornea was blurred in 14 cases, much more in the first batch than in the second, because the latter had had time to clear up. According to the patients eye symptoms had been at their worst from 3 to 48 hours after gassing, 24 hours or more in the great majority. The fundus oculi was normal in all cases.

In more than half the voice was husky or lost. The larynx was normal in only 9 cases, the remainder showing catarrh of the arytenoids, with pinkness of the cords in a few, and reddening of the tracheal mucosa in several. In contrast with the eye symptoms, these laryngeal changes were as marked in the second as in the first batch of men,

being apparently of a more enduring character than the eye inflammation. In a few cases scattered sibili were to be heard, but the chest complications were on the whole not severe. One man had a transient albuminuria, but otherwise the urine was normal.

In 49 cases skin lesions were present. These appeared at an interval ranging from a few hours to 14 days after gassing, the average date of appearance being almost 4 full days after. The lesions were of two kinds, inflammatory and pigmentary. Apparently these were two stages of the same process, as in many cases pigmentation developed in the inflammatory areas as the signs of irritation cleared up. In some, however, pigmentation developed without any obvious erythema preceding it, and in others again the inflammatory phenomena subsided without giving rise to much pigmentation.

The commonest type of inflammatory lesion was an itching, smarting erythema, confluent in the centre but blotchy at the periphery of the areas affected. In some cases bullæ formed in these areas, but more often the skin peeled in flakes, leaving a sore, weeping surface, or else the redness changed rather abruptly to pigmentation, the subjective symptoms disappearing. In several cases there were blisters with little or no erythema round them, chiefly on the hands and forearm. Several others again had an itching eruption of scattered reddish papules on the buttocks or the front of the chest.

The pigmentary changes varied from a spotty discolouration of small areas, of a *café au lait* tint, to a deep browning, almost blackening, of large areas, broken only by pink patches where flakes of epidermis had come off. The depth of the discolouration in several of these cases was most striking, also its rather rapid development at a period of as many as 12 days after gassing.

Apparently it tends to clear up, partly no doubt by reabsorption and partly by desquamation. The only mucous membrane in which pigmentary changes were observed was that of the glans penis.

The areas most often affected by the erythema were the scrotum and fork, the flexures of the elbows, and the axillæ; but it was also seen on the neck, the front of the chest, and even on the toes. The distribution of the pigmented areas was practically the same; but in several of the most pronounced cases it attacked the lower abdomen and groins, and also the neck, with greater intensity than in other areas.

To this summary of symptoms made from our first batches of cases it is necessary to add certain later impressions drawn from a longer experience of large numbers of cases in order to complete the clinical picture. In particular we must lay stress on the severity of the respiratory symptoms. From the larynx down to the smaller bronchioles severe suffocative swelling develops. In fatal cases, of which we have had but one, this leads to an increasing dyspnœa with fever and cyanosis, but surprisingly little in the way of physical signs. The clinical picture in these circumstances is much like that of the purulent bronchitis which has been so prevalent in our armies in the winter. As in these cases, there is profuse purulent sputum. The actual lesion appears to be a necrosis of the tracheal and bronchial mucosa, followed by secondary invasion by the bacterial inhabitants of the respiratory tract. In one case these lesions were followed by the development of an empyema at the right base, which was opened and drained with satisfactory results. In the vast majority of our cases there have been no symptoms of respiratory disease apart from cough, distressing and persistent at night, and dyspnœa, persisting into convalescence without obvious physical signs.

In some cases also the skin symptoms were very severe, consisting of large blisters which develop within 24 or 48 hours after exposure to the gas. Nearly always this is attributable to unusually direct contact with the toxic contents of the shells. In many cases the shell burst so near to the man that it is probable that its liquid contents were splashed on his skin or clothing. In several, again, the blisters were limited to the ankles, the men having been exposed as stretcher-bearers to shell-contents in shell-holes. In one instance these lesions were so widespread and severe that the patient died of shock and toxæmia as in an ordinary burn of corresponding degree.

There have been a few instances in which the gastric symptoms have been severe and persistent—vomiting and epigastric pain, with tenderness, increased by food, and not yielding quickly to treatment. We have seen no case in which these symptoms were at all threatening, but several in which they have persisted without the slightest improvement for over a week after admission.

In all but two points these symptoms are easily explicable. Eyes, nose, throat, bronchi and skin all bear the marks of severe injury by direct contact with some irritant. But this assumption does not get rid of two difficulties : first, why is there so long a latent period between the time of gassing and the time of the onset of the symptoms ? second, how are we to explain the pigmentation ?

To dispose of the latter point first. The pigment is not ' dirt," a deposit on the surface, for it is impossible to get it off by any cleansing agent. On the other hand, it is not a true pigment. It peels off with the cutis thrown off by desquamation ; further, sections of a portion of pigmented skin excised from one of our patients show that there is no increase of melanin in the skin. The only satisfactory explanation is that suggested by Capts. E. P. Cathcart and

B. J. Collingwood, who kindly came to see our cases, to the effect that the pigment is a metallic sulphide formed by interaction of the gas with chemical processes in the dying cuticle. This explains its rather sudden appearance, its obviously superficial position, and its disappearance with desquamation.

Two explanations of the latent period are available. According to the first, the effect of the gas on the conjunctivæ, skin and throat, bronchi and stomach is a direct irritation, delayed only because it depends on decomposition of the gas in contact with moisture. On this hypothesis it is to be presumed that the actual irritant is some breakdown product of the gas which in its turn enters into union with the tissues attacked. The other theory would assume absorption of the gas into the body, and re-excretion with injury to the skin and mucosæ as it and its by-products pass through on their way out. In favour of the latter is the fact that skin symptoms may develop many days after gassing, in spite of the patient's clothes having been changed within twenty-four hours after gassing. Against it and in favour of the direct irritation theory are these two points: first, that the poison when in sufficiently concentrated liquid form can raise blisters in the skin; and, second, that late erythema and pigmentation have been much less frequently encountered in those patients who were treated in Field Ambulances and elsewhere shortly after gassing with alkaline baths.

It may be added that we should expect to find a large number of cases with evidence of renal damage if the gas were absorbed into and re-excreted from the circulation. In point of fact, we have only seen one case of nephritis complicating "mustard" gas poisoning, and in this case the renal lesion had probably begun to develop before gassing occurred. Moreover, only one of our first 67 cases

developed any albuminuria, and this only lasted for a day or two.

We have found 2 per cent. sodium bicarbonate lotion a very useful application for all lesions—eye, skin and throat.

As both erythema and pigmentation reminded us of arsenical poisoning we consulted Lieut. R. Gaunt, Anti-Gas Instructor, No. 2 Base Training Camp, who kindly gave us his expert opinion as to the possibility of arsenical compounds being employed in gas shells. He thought it was possible, and we therefore asked Capt. Maclean, R.A.M.C., working at No. 46 Stationary Hospital, to see if arsenic were present in the urine. Three of the severest cases were selected, and twenty-four hour specimens collected. Capt. Maclean was good enough to examine these for arsenic, but with negative result.

We express our thanks to Lieut.-Col. J. Paul Bush, C.M.G., R.A.M.C.(T.F.), and to our colleagues for permission to use these records.

Part II.

The following notes give an account of the experiences of " mustard " gas poisoning which one of us (R. R.) gained while acting as unofficial medical adviser to a munition factory in 1918 during a period of several months. At this time the medical arrangements were in charge of a trained sister with two untrained assistants. Later on a whole-time medical officer was appointed.

It was in May or June that I was warned that a dangerous gas was about to be manufactured at the factory. On June 18th I was sent for to see one of the chemists who was suffering from eye trouble due to the gas. His symptoms were photophobia and lachrymation, and the eyes could scarcely be opened owing to spasm and œdema of the lids. There was severe conjunctivitis and intense pain, which was

slightly relieved by 2 per cent. cocaine solution. The eyes were bathed with dilute boric lotion and bandaged. The room was darkened and frequent irrigation with warm weak glycothymoline was instituted. Later in the day an ophthalmic surgeon saw him with me and advised that we should continue to use weak glycothymoline and cocaine drops with atropine. He also suggested that red light might be found comforting. By that time definite iritis had developed. The following day the patient was somewhat easier, but the iritis was more marked and the cornea was roughened. Under the treatment outlined above the patient improved slowly, but the photophobia remained very obstinate. By the end of June he was able to go away for a rest. He was obliged to wear dark glasses in any but the most subdued light.

On July 7th six chemists were more or less severely gassed. Again the eyes suffered most, though they all had throat trouble with husky speech and cough. The eye symptoms were the first to appear, beginning 4 to 48 hours after exposure. Lachrymation and spasm of lids, due presumably to photophobia, were very intense, so that it was difficult to examine the eyes. The sister having been informed that 10 per cent. solution of sodium bicarbonate was the best lotion to use, this was employed every two hours as an eye-wash, but it was found necessary to use cocaine drops also to relieve the pain, which was present even with the eyes closed and bandaged. Red light did not seem to afford any relief. On July 9th an ophthalmic surgeon saw the patients with me and supported the plan of treatment. He warned me of the danger of perpetuating the blepharospasm if light were excluded too long and too completely, and said that it was very difficult to overcome. Every effort was therefore made to get the patients to bear exposure to light as soon as possible. The eye lesions were not so

severe as in the first case, none of them showing more than quite slight iritis. The value of early exposure to light was, however, obvious, the photophobia disappearing much more quickly than in the first case. The ophthalmologist also told me that the corneal roughening was not likely to be permanent.

After this it became a routine procedure to wash out immediately the eyes of any person exposed to traces of gas with 10 per cent. solution of bicarbonate of soda. This involved a heavy strain on the sister, as she did nearly all this work personally.

No further mishap occurred for some time, but there were numerous cases of gas burns which the sister attended to herself. Her plan was to snip the blisters under hot water and to cut away all loose skin; then to soak the affected part in water as hot as could be borne for some time, half an hour or more; and afterwards to apply boric fomentations which were frequently changed. The hot bath was repeated twice daily. The results were on the whole good. There was, however, a distinct tendency for burns which had almost completely healed to relapse.

I saw chiefly men suffering from laryngitis causing husky voice, some pain, and dysphagia. Others had very severe cough, especially at night, with very slight physical signs of bronchitis. This cough was difficult to relieve, and I failed to find any drug or combination of drugs which could be relied on to do much good or to shorten the very protracted course of the trouble. Ipecacuanha wine was perhaps the most useful. Spraying or gargling did some good to the throat symptoms.

Another common complaint was pruritus. Often there was no apparent skin lesion except a few tiny red papules. These were chiefly on the feet and legs, and leather boots appeared to afford no protection from the gas. The most

common site for pruritus, however, was the scrotum and folds of the groins, and here the skin became roughened and there was slight desquamation. I found that an ointment of zinc oxide with resorcin and ichthyol gave great relief, and sufferers came to me for some time after I ceased my connection with the factory to get this ointment. A very peculiar point was that men who had been affected on former occasions were much more readily injured by fumes than those who had not previously been exposed to them.

On August 10th eight men were gassed. The symptoms were chiefly respiratory, and four at least of the men were removed at once to hospital. I had little chance of studying these cases, as the men were so ill, gasping for breath, that no time was lost in removing them by ambulance. About this time a whole-time medical officer was appointed to the factory, and my connection with it came to an end.

If in the future this gas should have to be handled, whether for its manufacture or its destruction, the utmost precautions should be taken to warn everyone against its deleterious effects. The nature of its effects should be explained to them, both to encourage them to seek early treatment and to dispel that atmosphere of mystery which is so potent a factor in the causation of the neuroses alluded to in Part III. Every facility should be given for immediate treatment of symptoms. We think medical officers responsible for these procedures should be fully informed as to the best treatment. They might well be supplied, for example, with such publications of the Medical Research Council as bear on the subject.

PART III.

At the time of seeing these cases during the first few weeks one thought that they would clear up quickly and leave no after-effects, but this idea was dispelled. They turned out

in a small percentage of cases to be very troublesome. The condition became a persistent or intermittent photophobia and lachrymation with almost no injection, mixed up with a marked neurosis, and the treatment had to be directed much more to this latter element than any other.[1]

Continuous reassurance of perfect recovery with some sort of faith cure had to be the line of treatment; avoidance of shades and dark glasses with cold lotions and occasional astringents, in the end brought about or accompanied a cure.

Many cases showed the usual mixture of sub-conscious malingering and hypochondria, but one is seeing as time goes on fewer and fewer of these amongst the pensioners.

Progress of the Medical Sciences.

MEDICINE.

Non-nephritic Albuminuria.—In considering when and how far albumen is to be regarded as a sign of nephritis everyone acknowledges that it may occur without permanent disease of the kidney in passive congestion from direct pressure on the renal veins, and in certain forms of heart and lung disease, in many acute fevers, and in pregnancy, or after cerebral hemorrhage or from the irritation of certain drugs such as turpentine. French enumerates some forty other diseases and morbid states in which it may appear. Recent military experience has shown it in a still wider field, for Maclean in testing 50,000 trained soldiers and 10,000 fresh recruits found albumen in 5.6 per cent., though only in 1 per cent. were there definite signs of disease. Indeed, Collier and others have shown that most healthy persons under violent exercise, such as racing, may pass appreciable amounts. Cold baths often produce a similar result, as do mental strain, terror, and nervousness before examinations.

[1] This is on all fours with our experience of the "irritable heart" that sometimes persists after gassing. Nine-tenths of it is due to psychoneurosis, and it is this element that offers most possibility of treatment (C. C.).

Herringham suggests that these latter are slight forms of hæmoglobinuria. Then there are the instances of cyclic albuminuria in adolescents, and in cases of lordosis. Probably none of these have any connection with nephritis, from which it is most important to distinguish them.

Mackenzie Wallis [1] insists that in many of these conditions what we really get is chiefly a form of globulin associated with lipoids. If the latter are in great excess the fluid is milky or opalescent, as in pseudochyluria. More often this " euglobulin " does not affect the clearness of the urine, but it may be diagnosed by the fact that it is always precipitated by dilute acetic acid in the cold. Thus when a dilute (33 per cent.) solution of acetic acid is added drop by drop to 10 cc. of urine (which may be also diluted) a white precipitate falls. This was formerly called nucleo-albumen, and is often a source of error, since ordinary boiling tests bring down all forms of protein alike. He finds this lecithin-globulin in most of these non-nephritic albuminurias, sometimes to a large amount; but there is no failure in the work of the kidney, no retention of urea or chlorides, no uræmia, no change in the heart or blood pressure. Hence the importance of a preliminary dilute acetic acid test, confirmed if necessary by a quantitative one by ammonia and ammonium sulphate. In some forms of nephritis, especially parenchymatous, and in eclampsia, there is an excess of pseudoglobulin, but not of euglobulin, containing lecithin, which is alone precipitated by acetic acid in the cold.

If his results are confirmed by experience they will afford an invaluable test for non-nephritic conditions. In a discussion of his paper various cases were brought forward in which large amounts of albumen had appeared at times for years without obvious signs of nephritis, and in some of them the presence of lecithin globulin had been proved. It sometimes occurs too in syphilitics.

A very useful test for renal efficiency was devised by H. Maclean. [2] If a large dose of urea is given to a patient with defective kidneys, it is found that he cannot excrete urea in high concentration, *i.e.* 2 per cent. or over. The method is employed by the Pensions Ministry as follows :—

1. The patient empties the bladder and drinks a solution containing 15 grammes of urea in flavoured water.

2. Water is passed one hour and again two hours after the draught, and the amount of urea measured by the hypobromite method. If great diuresis occurs, say 500 cc. in two hours, a third sample should be taken for analysis. The lower the percentage is below 2 the more inefficient are the kidneys.

F. Kidd [3] points out that albumen in bacilluria is also apt to cause errors. Besides that due to calculi, stricture, enlarged

prostate or acute pyelitis, we often meet with it in chronic infections, especially by the Bacillus coli. This urine is generally acid, sometimes containing blood or pus, and may have a fishlike odour. There are frequent calls to pass water, the urine may be clear or show a haze which neither clears up with acetic acid nor liq. potassæ, but gives a shot-silk appearance on stirring. Intermittent pyrexia with rigors is sometimes met with, but the all-important thing is to note the presence of crowds of bacteria and to diagnose the chief types.

Much discussion has arisen on a paper by Prof. Langley, which seemed to show that **electrical stimulation of paralysed muscles** has no beneficial result. If electricity has only a mental influence, or if its curative effects cannot be measured and weighed when correctly used, it had better be laid aside. But there are plenty of instances to the contrary. Thus Sir Thomas Oliver has shown (and anyone can repeat the test for himself) that in electrical treatment of plumbism the lead can be removed from within the patient's body by the current and actually weighed. Now it is well known that Leduc, having divided the sciatic nerves in animals, treated one limb in each case with certain forms of electricity for a long definite period and then killed them and compared the weight of the treated limbs with that of the controls. A large gain of weight was found in the muscles treated by certain currents, and only in those. His results have been confirmed by practice. There seems general agreement that Langley's experiments do not contradict this at all. He too divided the sciatics and carefully weighed the treated and untreated muscles, finding that atrophy was not prevented. But his treatment by condenser currents only was confined to the twenty days after section, *i.e.* to the period of irritation, when stimulation is probably useless and harmful. It is another question what the results would have been had he taken the second period from the twentieth day onwards as in ordinary practice. It is possibly true that nothing will check atrophy in the first fortnight, especially if the muscle is then, as is suggested, in continuous fibrillary contraction.

G. Cooper, in discussing atrophy from disuse[4] points out that apart from actual wounds of the muscle and toxins, it is due to (1) lesions of the lower neuron, (2) immobilisation of the joints as by splints, (3) reflex inhibition of the muscle to give rest to a diseased joint. Nutrition is effected chiefly during contractions by exchanges between the muscle plasma and the lymph (and blood vessels), and there seems to be no difference between contractions produced by normal nerve stimuli and electrical ones as to the metabolism resulting. Hence that type of electrical treatment is most effective which gives the best contractions with the least pain. He advises for this end

picking out each muscle with a new form of Faradic battery which gives unvarying interruptions up to 900 per second. Of course, in muscles, which show R.D., galvanism alone produces contractions.

Cumberbatch[5] lays down that besides causing contractions we should stimulate the afferent nerve endings in the skin to influence reflexly the anterior horn cells. The value of this is shown in a case where he obtained a return of voluntary movement after five years' paralysis by using a sinusoidal current for three months, which never produced a single contraction. Macgregor reported a case of plumbism where with precisely similar electrical reactions in both arms the one treated with Faradism recovered even sooner than that to which galvanism was applied. Lewis Jones and others have insisted on the value of Faradism even when the muscles do not react to it. Certainly the coldness, blueness and many trophic changes disappear under it. We require a large number of observations recorded minutely to settle the value of the two methods; meanwhile, after the first three weeks the best plan is to pick out and exercise each muscle by that current which is effective, and also to give Faradism to the limb.

Finally, since fatigue in a muscle is the non-removal of lactic acid, the circulation should be increased before each treatment by hot or whirlpool baths or massage to oxidize and carry it away.

G. PARKER.

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2 *Brit. J. Exp. Path.*, vol. i., No. 1, p. 53.
3 Frank Kidd, *Common Infections of the Kidneys*, 1920.
4 *Proc. Roy. Soc. Med.*, 1920, xiii., Sect. Electro-Therap., p. 33.
5 *Ibid.*, p 45.

SURGERY.

The Surgical Treatment of Gastric and Duodenal Ulcers.—In our last issue the medical rather than the surgical treatment of the above diseases was considered. It seems appropriate, therefore, to continue discussion of the subject from the surgical point of view. A high degree of standardisation of the principles and methods of surgical treatment of duodenal ulcer has been reached, but in the more difficult problem of the treatment of gastric ulcer opinion is less settled. This is so because the comparatively simple and safe operation of gastro-enterostomy, in its present form, has proved highly successful for the former

but often unsuccessful for the latter, for which, therefore, various other procedures are being practised and recommended, procedures which are for the most part of greater difficulty and danger.

Much light has been thrown on the whole subject by recent discussions, notably at the Royal Society of Medicine [1] and the Cambridge Annual Meeting of the British Medical Association, [2] and in several excellent papers, notably those by Dr. Hurst, [3] Mr. Sherren, [4] and Sir Berkeley Moynihan. [5]

The title of the last contribution on this list is "Disappointments after Gastro-enterostomy," and in it the author tabulates the causes of disappointment as follows:—

Firstly, those in which the operation has been performed in the absence of any organic lesion justifying it. In this class the errors have been primarily diagnostic, and such is the commonest cause of failure and explains nine out of ten cases. The conditions for which the operation was needlessly performed were (*a*) in functional disorders of the stomach or duodenum, and (*b*) in cases of chronic disease elsewhere. If the operation is performed for functional troubles, for example for atony or prolapse, often the patient's condition is made worse, and it may become the duty of the surgeon to undo the anastomosis. If no ulcer can be demonstrated on opening the abdomen gastro-enterostomy should not be performed, but a search should be made elsewhere for the cause of the symptoms which are present. Sir B. Moynihan has found that the operation has been performed wrongly for: (1) chronic appendicitis—in this disease there may be hæmatemesis or melæna; (2) tuberculous disease of the intestine—with tuberculous disease of the cæcum there may be present such symptoms as pyloric spasm, hyperacidity, stomach pain, and vomiting; (3) cholelithiasis or carcinoma of the gall-bladder—in the former "the pain of flatulence and of heaviness comes with fair regularity about half an hour after a meal," and there is often vomiting and acidity: "A very large proportion of the cases of cholelithiasis, at a time when no colic has occurred, are diagnosed as cases of gastric disease"; (4) cirrhosis of the liver; (5) splenic anæmia; (6) tabes dorsalis with gastric crises; (7) disseminated sclerosis, in one case in which the stomach became distended in the attacks of pain; (8) the vomiting of pregnancy; (9) lead poisoning; (10) prolapse of the kidney; (11) colic adhesions; and (12) epigastric hernia.

Secondly, the failure of gastro-enterostomy may be due to the operation being incomplete in that some source of infection related to the ulcer has not been dealt with, for example cholelithiasis or chronic appendicitis. In duodenal ulcer the ulcer should be infolded. It will then disappear rapidly.

Thirdly, the failure is due to faults of technique, such as leaving a long jejunal loop, leaving the efferent loop kinked, rotating the jejunum round its longitudinal axis, making the opening too small, and not closing the opening made in the meso-colon.

Fourthly, late complications may develop, such as the formation of a jejunal ulcer or the change from simple to malignant ulceration in the stomach.

The foregoing enumeration of disappointments, the understanding of which is important, must not be allowed undue weight in estimating the value of gastro-enterostomy for suitable cases when skilfully performed, for they are very few in comparison with the generally excellent results of the operation and they are mostly avoidable. For the surgical treatment of chronic duodenal ulcer, which is four times as common as gastric ulcer, the standard procedure is still gastro-enterostomy, and the results are excellent. The same statement holds good for cases of cicatricial pyloric obstruction.

It is for chronic gastric ulcer that surgeons are more and more adopting other and move radical procedures, and to show how this change of practice has come about we must again review the opinions expressed by Sir B. Moynihan in his latest address on the subject at the Cambridge Meeting last June, and also the opinions of others who took part in the discussion.

Sir B. Moynihan stated that he had abandoned gastro-enterostomy for gastric ulcer for the following reasons. (*a*) The results were not so satisfactory as those following partial gastrectomy. The remaining morbidity was greater. (*b*) Cases returned with the ulcer still open. (*c*) Some few cases returned with carcinoma of the stomach after so long an interval that it was probable the cancerous change had occurred after the operation had been performed. (*d*) There is evidence that gastric ulcer has developed after gastro-enterostomy performed when the stomach was normal. Similarly Sir B. Moynihan has abandoned excision of ulcers after trial in 42 cases. He now "chooses partial gastrectomy whenever it can with reasonable safety be performed." The end of the stomach is applied to the side of the jejunum. The mortality in ten years has not been more than 2.5 per cent. For cases in which the patient is too feeble for gastrectomy or in which the ulceration is too advanced he chooses gastro-enterostomy in "Y," combined with jejunostomy. No food is given by the mouth for months or years, it is all given by the jejunostomy opening. With this treatment very large ulcers have been healed. The "Y" method of operating is that which most effectively prevents the biliary, pancreatic, and intestinal secretions gaining access to the stomach.

Mr. James Sherren has written: "Simple chronic gastric ulcers will heal as the result of gastro-jejunostomy correctly performed unless they are adherent and have perforated, their floor being formed of pancreas or liver." For the latter type of ulcer, owing to the failure of gastro-jejunostomy to cure, he has with increasing frequency performed partial gastrectomy, and up to December, 1919, had carried it out in 101 cases with 9 deaths. He believes that for gastric ulcer the operation of gastro-enterostomy will become less frequent than partial gastrectomy.

Mr. Rowlands[6] pertinently points out the dangers of these more radical procedures. At the Cambridge Meeting he said: "If partial gastrectomy becomes the most common operation for gastric ulcer, and is performed by a large number and variety of surgeons, the mortality will become very serious. Even in specially skilled hands it is about five times that of gastro-enterostomy."

We ourselves, nevertheless, anticipate that as experience grows and technique improves the results of partial gastrectomy will ultimately closely approach those of gastro-enterostomy in safety and general success. The history of most of the big innovations of surgery suggests this conclusion.

The Physiological Results of Gastro-enterostomy.—This subject has been discussed in most of the articles to which we have referred. Mr. Herbert J. Paterson's views as expressed at the Royal Society of Medicine in March and again at Cambridge are emphatic. He shows that there are two striking effects of the operation on the gastric contents, viz. (1) diminution of total acidity, and (2) increase of mineral chlorides. The diminution of acidity is due partly to the diminution of the total chlorides secreted by the stomach and partly to the neutralisation of free hydrochloric acid by the small quantity of bile and pancreatic juice which flows back into the stomach through the anastomosis. The increase of mineral chlorides is due to chlorides added from without, that is to the mineral chlorides of the bile and pancreatic juice. If entero-anastomosis ("Y" operation) is performed at the same time as gastro-enterostomy, the increase in mineral chlorides does not take place.

The conclusion is that gastro-jejunostomy is not a mechanical but a physiological operation. The operation "does not appreciably diminish the proportion of nitrogen or fat absorbed from food," and the patients do not suffer in nutrition.

Mr. James Sherren writes: "Gastro-jejunostomy acts by its influence on gastric motility and secretion. It secures a more rapid emptying of the stomach, and so prevents or counteracts pyloric spasm, and should abolish the excessive

acidity which, with gastric stasis, Bolton has shown to be a cause of chronic ulceration." He has found that the greatest lowering of acidity is when the anastomosis is made toward the cardiac end of the stomach, and that it persists for years after the operation.

Sir B. Moynihan appears not to agree with the physiological views described above, maintaining that there is no proof that diminution of the normal acidity of the stomach contents favours the healing of gastric ulcers, and that hyperacidity is not the rule in gastric ulcer, being present in less than 30 per cent. of his own cases.

Dr. Arthur F. Hurst writes: "The more accurate investigations of Crohn by means of fractional test meals show that hypersecretion and hyperchlorhydria are constantly present" in gastric and duodenal ulceration. He concludes also from X-ray observations that three types of stomach exist. There is, firstly, a hypertonic type, which relatively quickly empties itself, and is a predisposing cause of duodenal ulceration in the presence of exciting causes, such as the production of toxins, mostly of bacterial origin, in other situations, *e.g.* from pyorrhœa alveolaris or chronic appendicitis. Secondly, there is a hypotonic type of stomach which is liable to develop gastric ulceration from similar causes. Thirdly, there is the isotonic normal stomach, which will not ulcerate even when the exciting causes are present.

We consider these speculations interesting and suggestive, and also that of Mr. G. E. Waugh,[7] who considers that the drag of a mobile ascending colon on the duodenum and pylorus injures the tissues there and leads to ulceration if the organs do not descend and relieve the tension.

In conclusion, we would direct attention to an excellent paper on the diagnosis of gastric ulcer by Sir B. Moynihan read at the opening session of the Harveian Society, October 23rd, 1919,[8] which we regret we have not space to review.

J. LACY FIRTH.

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5 *Brit. M. J.*, 1919, ii. 33.
6 *Brit. M. J.*, 1920, ii. 107.
7 *Brit. J. Surg.*, 1920, vii. 343.
8 *Brit. M. J.*, 1919, ii. 765.

Reviews of Books.

Neurological and other Papers. Reprinted from the Writings of JOHN MICHELL CLARKE, M.A., M.D. Cantab., LL.D. Bristol, F.R.C.P. Lond., Lieut.-Col. R.A.M.C.(T.F.). Pp. xxiii., 263. Bristol: J. W. Arrowsmith Ltd. 1920. Price 10s. 6d. net.

To write a formal review of this volume would be an impossible task for anyone who had the privilege of working with the man in whose honour and commemoration it has been printed. Yet it is perhaps well to let his old friends know what kind of book this is by which his memory is to be perpetuated. For those who knew him intimately, and with the affection that was an inevitable outcome of such intimacy, it will be pleasant to find that the Editors, Drs. George Parker and J. M. Fortescue-Brickdale, to whom were entrusted the difficult task of preparing this volume, have done their work admirably. In a brief prefatory note they describe the foundation and collection of the Michell Clarke Memorial Fund, the decision of the Committee to apply part of that fund to the publishing of a volume of reprints, and the steps taken by them to prepare the volume. Then follows an excellent biographical memoir (reprinted from No. 135 of the *Journal*), which could not be bettered either in matter or manner; and after this a list of Michell Clarke's published contributions to the literature of medicine, numbering over a hundred, and classified according to the branch of medicine discussed. Approximately one-half fall under the heading of Neurology, the other half being devoted to diseases of the blood and ductless glands, acute infective diseases, and so on. From these the Editors have selected eight neurological papers and nine on general medicine, which are reprinted in the memorial volume. His old friends will be glad to know that among these is included Dr. Michell Clarke's Presidential Address to the Bristol Medico-Chirurgical Society on "The Relation of Medicine to Natural Science." Here, and perhaps in the opening paragraphs of his Long Fox Lecture (also included amongst the reprinted articles) there is a little unveiling of the inner mind of a man who was reticent about himself, even above his fellow-countrymen—a glimpse of the motives that actuated his tireless industry.

Those, again, who respected his work while knowing him less intimately, will find in the book a fair summary of his activities—work of the very first class in the domain of neurology, with contributions to the study of other branches

of medicine that are scarcely less valuable. Much of his best work was published in forms that were unsuitable for reprint in this volume. Even so, however, we have here brought together into a convenient compass a number of papers that no student of internal medicine ought to ignore. In the Long Fox Lecture on "Cerebro-Spinal Syphilis" and in the Bradshaw Lecture on "The Nervous Affections of the Sixth and Seventh Decades of Life" there is an immense mass of valuable information set out with great care and skill. Indeed, it is not too much to say that every one of the papers included in the book is of value to all who are occupied in the study and practice of medicine. Moreover, this value will endure, because all that Dr. Michell Clarke wrote was derived from long and minute observation of clinical facts, interpreted by a mind that had built its superstructure of scientific medicine on a solid foundation of physiology and pathology.

A word must be said in recognition of the wisdom of those—the Editor of this *Journal* chief among them—who urged upon the Committee responsible for the expenditure of the Memorial Fund the desirability of preparing a volume of reprints such as we now have in our hands. The excellence of the editorial work has already been noticed. The publishers are also to be congratulated on producing so attractive a book in these difficult days. A good portrait of Dr. Michell Clarke forms a frontispiece.

The volume as a whole may be trusted to do what we feel sure he would wish: to prove that in this and other provincial schools of medicine in Britain the broadest and wisest views of our fight against disease are to be gained by those who will devote themselves to its study.

The Anatomy of the Peripheral Nerves. By A. MELVILLE PATERSON, M.D., F.R.C.S., Lieut.-Col., R.A.M.C. Pp. xi., 165. London: Oxford Medical Publications. 1919. Price 12s. 6d. net.

This book is designed for the use of military orthopædic surgeons and students, and gives a detailed and precise account of the peripheral nerves, as well as of the cranial and sympathetic. The diagrams are remarkably clear and numerous, one in fact to every two pages—many of them have been made from original dissections. We find interesting sections on the morphology and development of the nerves and on the great plexuses both of the spinal nerves and of the sympathetic. The book would be improved by a fuller account of the abnormalities frequently met with and the location in the trunks of the upper limb of the fibres to each group of muscles so far as they are known.

The Microscopic Anatomy of the Teeth. By J. HOWARD MUMMERY, D.Sc. Penn., M.R.C.S., L.D.S. Eng. Pp. viii., 382. London: Oxford Medical Publications. 1919. Price 25s. net.

Mr. Mummery's name has long been associated with research work on the structure and development of the dental tissues, and it is with very great pleasure that we welcome his latest publication. Nearly half the book is devoted to the enamel. The author is to be congratulated on being the first to describe the minute anatomy of this structure in the elephant. He confirms Smreker's views with regard to the enamel prisms, that they are not rounded or polygonal in transverse section, but have an arched form owing to the prisms being longitudinally grooved and fitting into one another. Perhaps Mr. Mummery is best known for his work on the innervation of the dentine, and it is here that his triumph is greatest. There seems little doubt, judging from his statements and his photographs, that the neurofibrils in the plexus beneath the odontoblasts do not pass direct to the dentine but enter small nerve-cells or corpuscles which lie in a row along the bases of the odontoblast cells. Each end cell contributes (1) an axon which passes up between the odontoblasts to enter the dentine with the dentinal fibril, (2) numerous dendrons which form a network around the odontoblasts. Another new feature of this book is the description of the sheath of Hertwig, which is shown to be not a continuation of the enamel organ, but a prolongation of the epithelial cells in the tooth follicle lying to its outer side. The illustrations, both plates and microphotographs, are exceedingly good, and the author expresses his own views clearly and convincingly, at the same time giving full credit to the findings of others.

Diseases of Women. By TEN TEACHERS. Under the direction of COMYNS BERKELEY, M.A., M.D., M.C. Edited by COMYNS BERKELEY, H. RUSSELL ANDREWS and J. S. FAIRBAIRN. Pp. xi., 650. London: Edward Arnold. 1919. Price 30s. net.

This work will form a welcome addition to the student's library of gynæcological text-books. The collaboration of ten gynæcologists at present engaged in teaching is unique, but in this particular instance is eminently successful. The danger of indefinite statements, which is always likely when several writers collaborate, has been avoided, and the result is a very sound and practical guide to the student and the busy

practitioner. The description of the anatomy and the development of the female pelvis is careful and accurate without being overloaded with detail. The plates are good, and the sections relating to the varieties of affections and methods of diagnosis are clear and precise.

Under the head of Carcinoma statistics of several thousand cases from the records of the Middlesex Hospital are given, which form a striking illustration of the value and advantages of such statistics, especially as to the relative frequency of carcinoma of the cervix and of the body of the uterus, and its occurrence under different conditions in the parous and nulliparous. The necessity for education in the recognition of the symptoms on which early recognition of this disease depends is fully shown and the relative importance of the various symptoms is clearly stated. The different methods of palliative treatment in cases where radical operation is not possible are fully described, and remarks on the limitations of treatment by radium and X-rays are practical and sound.

The chapters on Urinary and Intestinal Disorders, including Acute Abdominal Affections and Acute and Chronic Appendicitis, are specially noteworthy, while the chapter on Neurasthenia and Functional Disorders is particularly worthy of study, especially the remarks on the numerous cases in which operative treatment is undertaken for the removal of symptoms, in many cases without definite physical signs.

The descriptions of the various operative procedures and of modern technique are both full and precise.

We consider that this volume will form a very valuable addition to the library of the senior student as well as of the busy general practitioner.

John Coakley Lettsom and the Foundation of the Medical Society. By Sir St. Clair Thomson. Pp. 63. Illustrated. London: Harrison & Sons. 1918. Price, 2s. 6d.—Lettsom, one of the founders of the Medical Society, died in 1805, and though one might expect an array of interesting facts would be available for the historian, it is given to few to make one feel in touch with a personality, and to call up an almost living picture of his life and activities. In this, however, Sir St. Clair Thomson has been singularly successful, and his brochure and his descriptions of the various phases and episodes of the life of this distinguished eighteenth-century physician cannot fail to interest the reader. One of the questions of the day in 1800 was the price of bread, and one gathers from Lettsom's writings that the price of bread in 1774 was 8d., but that by 1800 " we find him writing, ' At present our quartern loaf is 1s. 6d., a sum truly oppressive to the poor.' " The author

continues, "With our present-day quartern loaf at only 9d., after three years of world war, our population may take courage by seeing what our forefathers had to endure in the Napoleonic struggles." Lettsom in his "Hints respecting a substitute for Wheat Bread" recommends Indian corn flour, and also refers to the merits of maize flour and of potatoes as other partial substitutes. How history repeats itself! But it is the references to Lettsom's residences, his favourite holiday, his American friendships, associations with celebrated people of his day, *e.g.* Dr. Samuel Johnson and Boswell, his habits of life, his methods of work, and his character that constitute the essential interest of this disquisition.

The Nation's Welfare. By Major-General Sir BERTRAND DAWSON, G.C.V.O. London: Cassell & Co. Ltd. 1918. Pp. 40. Price 6s.—This reprint of Sir Bertrand Dawson's Cavendish Lectures embodies his ideas on the organisation of National Medical Service and the Ministry of Health. The lectures were published in the *British Medical Journal*, and should be familiar to all medical men who are alive to the important problems now before the profession in the country. Some of Sir Bertrand Dawson's suggestions have already been embodied in the constitution of the Ministry of Health, notably the Advisory Council of Medical Men, of which he is now Chairman. Many of his other views seem likely to be brought to practical fruition sooner or later; and this pamphlet has therefore a great claim on the attention of all members of our profession. Very important is the insistence of the necessity in any national scheme for leaving all technical questions entirely in the hands of doctors, who alone have the right to decide them. Of almost equal importance is the view herein expressed that in any organised State Medical Service practitioners should be free agents not whole-time officials, and that their needs, both material (such as salaries, etc.) and educational (study leave, postgraduate work, research), should be provided for adequately by the State or by local authorities. We have picked out only two salient points, but the pamphlet teems with important ideas and suggestions, and should be carefully read and digested by all medical men, even the oldest.

"The Journal of Industrial Hygiene."—Vol. I., Nos. 1 to 4. Edited by DAVID L. EDSALL, M.D., S.D. (United States), and A. F. STANLEY KENT, A.M., D.Sc. (Great Britain). Monthly. London: The Macmillan Co. Price 21s. per annum.—We are pleased to welcome this excellent periodical, which is, we think, destined to take a large share in the development of this important subject. Its appeal is wide. In the first four numbers there are exhaustive articles on such varied subjects as

" The Problem of Fatigue," " Factory Inspection," " The Study of the Dust Content of Air," and " Poisoning by Compounds of the Aromatic Series." Then there are numerous articles on medical and surgical subjects and abstracts of current literature. These titles indicate the wide scope which the Editors have given to their *Journal*, with the result that all workers on subjects connected in any way with the health of the nation will find therein matter to interest and inform them. It is not possible in a brief review to deal with the separate articles in detail; they are all written by contributors with practical experience of their subjects, and are remarkable for clearness, conciseness and accuracy. Industrial chemistry and toxicology is well represented by the articles on " Manganese Poisoning " by the American Editor and others, the " Poisoning by Benzene Compounds," by Alice Hamilton, a subject recently brought into prominence by cases of TNT poisoning; " Lead Poisoning," by the same author, which though dealing with the industrial questions involved mainly from the American standpoint, has some very interesting paragraphs on the pathology of the condition; and again one on other inorganic poisons, which includes sections of much value on carbon monoxide, arsenic and phosphorus, as well as certain metals. Other subjects are equally well treated; and there is an individuality about the various articles which makes them very pleasant reading. The *Journal* is clearly and well printed on excellent paper, and the charts, diagrams and illustrations are finely reproduced. Good bibliographies dealing with recent papers are appended to a large number of articles, and will be found most useful.

We congratulate the Editors on the first four numbers, and wish the *Journal* all the success which its many excellencies deserve.

Psychoanalysis and its Place in Life. By M. K. BRADBY. Pp. xi., 266. London: Oxford Medical Publications. 1919. Price 8s. 6d. net.—Miss Bradby's book is written from a point of view other than medical, and affords a happy addition to the more conventional works on psychoanalysis to which we are accustomed. It should, moreover, help to dispel prejudices with regard to the subject which some of its advocates have aroused.

The earlier chapters contain an excellent résumé of a number of psychoanalytic theories. While the authoress pays a full tribute to the value of the pioneer work of the Freundian school, she indicates at the same time a broader horizon to the student of psychoanalysis. Art, ethics, morals and education she brings within the sphere of psychoanalytic teaching and research.

Miss Bradby treats her theme in a highly subjective manner, and in the opinion of some, at any rate, adds interest by the

prominence given to her personal point of view. Thereby she lays herself open to criticism by those who maintain that psychology loses in scientific value when it departs from objective considerations of thought and conduction. Strictly, it may be no part of pure psychology to consider moral and ethical values as such, but the patient does not allow the clinician to adopt this entirely impersonal attitude. To the neurotic the subjective treatment of his case is of great moment. Herein lies the greater clinical value of Jung's method, to those who practice psychotherapy, as compared with the more strictly scientific method of Freund. It is, then, this unscientific blend in Miss Bradby's book which helps to render it attractive to the clinician, while the authoress herself finds the greatest interest in the social and educational aspects of her work.

Half a Century of Smallpox and Vaccination (The Milroy Lectures, 1919). By JOHN C. MCVAIL, M.D., LL.D. Edinburgh: E. & S. Livingstone. (N.D.) Price 5s. 6d. net.—The publication of this survey is opportune in view of the facts disclosed in the final Report of the Local Government Board, that in 1917 only 43.3 per cent. of children were "successfully vaccinated," compared with 61 per cent. in 1898, while in the same period the "exemptions" have risen from 5 per cent. to 37.9; and that while, owing to war conditions, the adult male population is better protected by re-vaccination than formerly, only about half the children under 10 years of age have been vaccinated, so that the measures for repression which have hitherto proved successful cannot be implicitly relied upon in a population so largely unprotected. Under these circumstances a study of Dr. McVail's well-informed and judicious survey cannot fail to be of service to every member of the medical profession.

War Diseases and Pensions. By R. M. WILSON, M.B., and W. M. T. WILSON, M.B. Pp. 71. London: Oxford Medical Publications. 1919. Price 3s. 6d.—This little book has two purposes. The purpose avowed in its title is to give to the medical profession the guidance which it sorely needs in decision upon war pensions. But for this purpose the book is unfortunately quite inadequate. It does good service in calling attention to the fact that no case has been diagnosed adequately until the causation has been determined. Particularly is this true of "D.A.H.," to which at least half the book is devoted. This indeed appears to be the main though unavowed purpose of the book, to propagate certain ideas as to the causation of "D.A.H." The theory held by the authors is that "D.A.H." is not a disease but a symptom, and that it is always a symptom of some infection or toxæmia. With the first part of this theory

we cordially agree. As to the second, we are convinced the writers do not realise the facts of warfare, or they would attribute more importance to the psychic factor in " D.A.H."

The Soldier's First Aid. By R. C. Wood, Q.M.S., C.A.M.C. Pp. 93. Toronto: The Macmillan Company of Canada. 1917. Price 2s. 6d. net.—An admirable little handbook, full of terse, accurate directions. The illustrations are first-rate, the language is simple. This is one of the best books for teaching first-aid and ambulance work that we have seen.

Diabetes and its Dietetic Treatment. By M. D. Basu, Major, I.M.S. (retired). Tenth Edition. Pp. 89. Allahabad: The Panini Office. 1919. Price 1 rupee, 8 annas.—The editions of Major Basu's book appear with great rapidity, bespeaking no doubt its popularity in India. The principal additions in this tenth edition consist of further insistence on the importance of vitamines in any diabetic diet, and a definite statement in the preface that in diabetes " the sugar in the blood plays the part of an antitoxin," an opinion, we venture to think, based on insufficient scientific evidence.

Syphilis in Childhood. By Leonard Findlay, M.D. Pp. xii., 154. London: Oxford Medical Publications. 1919. Price 8s. 6d. net.—In these days of Infant Welfare Centres and Antenatal Clinics this little handbook will prove of great practical value. Syphilis masquerades in countless disguises, as though doing its best to escape detection, and it behoves every medical man to recognise its presence whatever form it may assume.

Dr. Findlay describes very clearly the principal manifestations of the disease in childhood and their differential diagnosis. He very rightly insists on the value of a Wassermann reaction in clearing up many a doubtful diagnosis, and the method he employs for obtaining sufficient blood for the test even from a tiny infant deserves special notice and is well illustrated.

The luetin test he finds most unreliable in the case of children. Perhaps the most generally useful chapter in the book is that which deals with treatment.

The dosage of the different salvarsan derivatives is clearly stated, and the methods of administering these drugs intravenously and intramuscularly to children are given in detail.

Dr. Findlay's observations on the results of the treatment of expectant mothers are particularly encouraging and deserve to be widely known.

The volume is concisely written and well illustrated.

It will prove a useful addition to any doctor's professional library.

Editorial Notes.

The Report of the Consultative Council under the Ministry of Health.

In issuing their Interim Report the Consultative Council have wisely given the country generally as well as the Medical Profession an opportunity for timely consideration of the general conclusions of the Council set up to advise the Ministry of Health in the difficult and complex problem of improving the Public Medical Services.

There is no longer any doubt that the Medical Insurance Act has failed to meet the urgent necessities of the day even in its limited scope, and the failure which was feared and widely predicted by the medical profession has become only too obvious. We are convinced that if the medical profession had been called in to advise the legislature through its responsible organisations, and the advice followed, recent legislation would have proved of infinitely greater value and far less costly; and we therefore feel that in setting up an Advisory Council the newly-constituted Ministry of Health has displayed prescience and an earnest desire to seek the assistance and co-operation of medical practitioners in shaping their policy for the public welfare.

It is of the utmost importance that every medical practitioner should actively interest himself in the proposals to organise and develop the national medical services, and also endeavour to interest and to guide those who are responsible for the organisation of hospitals and all other existing institutions for the prevention and treatment of disease.

To this end the President of the Bath and Bristol Branch of the British Medical Association invited Lord Dawson to Bristol to meet representatives of all the more important hospitals and other cognate organisations. Our Local Notes afford a short summary of the speeches of Lord Dawson and others, firstly at the luncheon and secondly at a special meeting of the branch of the British Medical Association (see p. 187).

But it is not enough to become acquainted with the proposals that are afoot. We as a medical profession should take an active share in promoting, and perhaps modifying, these schemes, in guiding the legislature and the philanthropists, and in directing the actions of the representative medical organisations, so that the best and most fruitful results may eventually emerge. Individual criticisms are of little avail, and are apt at best to be destructive. What we need is constructive organisation, and this is alone possible by utilising and strengthening existing medical organisation so as to make it representative of the medical profession as a whole. The needs to be met are national needs, the co-ordination of the medical services must be a national and combined movement. But a lead in the right direction is afforded by the Gloucestershire scheme which Dr. Middleton Martin has initiated. If this be taken as a nucleus and developed, it may become sufficiently large and complete to demonstrate how under the guidance of medical men the State may secure a medical service which infuses the essential spirit of the existing voluntary system into a larger and more adequate national service, and which does not destroy or replace existing institutions, but develops and evolves the work that they have hitherto carried out.

But it will have to be recognised that "*one cannot make*

bricks without straw," and that considerable grants must be made towards the cost of this or any other scheme for the public benefit. The medical profession as a body is woefully paid for its services, in a measure due to the practitioner's readiness to shoulder medical burdens for the public welfare. The medical practitioners deserve a larger recompense for their work; but every step forward in the development of the provisions owed its inception to their advocacy, hence there has grown up a feeling that what they have called into being they must work and leave it to a grateful public to accord a fair remuneration. The birth of the great hospital movement, the development of the Medical Officer of Health, the Venereal Clinics, and finally, the inception of the Ministry of Health, all are the outcome of medical advocacy.

It is the duty of representative medical organisation, *e.g.* the British Medical Association, to press for adequate remuneration for the general practitioner and other medical men whose work is the basis of the Middleton Martin or any other scheme. Voluntary medical service so generously accorded to the voluntary hospitals is splendid, so long as the medical practitioner can afford to give it and the patients are fit and proper persons to receive unpaid service; a paid hospital service, even on a meagre basis, is at least a commercial transaction. But to fall between two stools, to accept a pittance as the price of medical services in voluntary hospitals for the relatively well-to-do would be folly, and only lower the economic position of every practitioner. Let us equally guard against the general practitioner being lured into an analogous position by a scheme which, however excellent in its scope and organisation, fails to provide adequately the labourer's hire.

A Paying Hospital for Bristol.

In former issues we have already directed attention to the need for a "paying hospital" to provide for the large and growing class of patients whose means render them unsuited for treatment in charitable institutions, and yet who are not in a position to pay the normal fees for surgical operations or other special medical attendance in addition to the necessarily high charges now obtaining in first-class nursing homes.

The voluntary hospitals were founded for patients who are too poor to pay for medical attendance adequate to the necessities of their complaint, and the professional attendance is given freely and without any fee. It is not well that those who can afford to pay acceptable fees for medical or surgical attendance and the cost of their maintenance should be compelled to encroach on what is provided for their poorer neighbours, particularly at a time when the long waiting lists at these hospitals prove how inadequate is the present hospital accommodation. It follows that there is a hiatus in existing institutions for the class between the well-to-do and the poor, for whom other than existing institutions are required. But further, it is not right that a patient who is well-to-do should not have access to the necessary scientific and clinical equipment, similar to that now obtaining in a modern hospital for the poorer classes, solely because he is able to pay for them.

Members of the Medical Faculties of the Royal Infirmary, General Hospital, Royal Hospital for Children, and of the Eye Hospital met on September 22nd and passed the following resolution: "A completely equipped hospital is urgently needed in Bristol for all classes of patients who are able to pay for medical and surgical attendance in addition to charges for maintenance." It was felt that such a hospital should be available for the patients of all physicians and surgeons, both general and special, and that it was not desirable for the voluntary hospitals to provide for patients who could thus provide for themselves.

The Library of the Bristol Medico-Chirurgical Society.

The Library is now open from 9 a.m. to 7 p.m. except on Saturday, when it closes at 1 p.m.

September 21st, 1920.

The following donations have been received since the publication of the list in June.

D. S. Davies, M.D. (1)	4 volumes.
J. M. Fortescue-Brickdale, M.D. (2)	1 volume.
The Medical Research Committee (3)	5 volumes.
C. Singer, M.D. (4)	1 volume.
Lt.-Col. A. J. Sturmer (5)	9 volumes.
J. O. Symes, M.D. (6)	2 ,,
C. H. Walker, M.B. (7)	1 volume.
John Wright & Sons Ltd. (8)	16 volumes.

THE ONE HUNDRED AND FIRST LIST OF BOOKS.

The figures in brackets refer to the figures after the names of the donors, and show by whom the volumes were presented. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Abernethy, J.	*Local Diseases and Aneurisms* ..	11th Ed.	1829
	Acute Intestinal Infections, Laboratory Diagnosis of	(3)	1920
Alquier, P.	*L'Appareillage dans les Fractures de Guerre*	(8)	1917
Arcelin, F.	*Exploration radiologique des Voies urinaires*	(8)	1917
Armand-Delille, P.	*Le Paludisme Macedonien*	(8)	1917
Babinski, J.	*Exposé des Travaux Scientifiques*		1913
Ballance, Sir C. A.	*Surgery of the Heart*		1920
Barjon, F.	*Radiodiagnostic des Affections pleuro-pulmonaires*	(8)	1916
Berkeley, C.	*Handbook of Midwifery*	5th Ed.	1920

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Gullan, M. A. .. *Theory and Practice of Nursing* 1920
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Obituary.

DAVID E. BERNARD, M.R.C.S., L.S.A., L.R.C.P.

ANOTHER of the older generation of medical practitioners of this city has passed away, and in the death of David Edward Bernard the profession has lost a man distinguished in his own profession and of exceptional brilliance in many other sciences and arts.

He was a man of fine talents, and had he chosen might have excelled in any branch of medicine, surgery, ophthalmology or midwifery. The last was his speciality, if one can say he had one, and at this he was pre-eminent: many are the patients and medical confrères who in the old days had cause to thank him for his timely help. He was always at the service of anyone,

and his knowledge and time were most ungrudgingly given. No one knows more than myself, a close friend for over 45 years, what a kind and sympathetic nature he had and how gentle and painstaking he was in illness. His manner was often brusque, but under it all he had a heart of gold, and there are many who owe a debt of gratitude to him for good advice and timely aid rendered in a moment of stress without a thought for himself.

His life in practice was a strenuous one, and he retired from the activities of his profession about ten years ago ; but he was never idle, and had many hobbies to occupy his spare moments. He was passionately fond of music, and helped many a pupil in their studies. He was an exacting master ; but the time was well spent, as many could testify in their after-life. He could converse well on any subject, and it was easy to see his knowledge was not purely theoretical ; he never took up a subject without thoroughly mastering its every detail. Microscopy, music, art, clocks and watches all came the same to him, and he was an authority on all. He was an ardent sportsman, and in early life was a constant rider to hounds, whilst cricket he imbibed from his cradle, and he was one of the oldest subscribing members of the Gloucestershire Club. He was also a welcome member at all athletic meetings, where he was official timekeeper up to a few years ago. For the last few years of his life he was a great sufferer, but was most patient to the end, when he was thankful to be called home. He died on the 9th of July, aged 78 years, and his body was cremated, as he desired, at Golder's Green.

C. K. C. HERAPATH.

We are indebted to Dr. W. Hetling for some further notes :—

It is now over fifty years since David Edward Bernard became house pupil at the Bristol Royal Infirmary and the writer became an ordinary pupil there, and thus became acquainted with Bernard, and being considerably older than the general run of pupils, attached himself to him for reading purposes. He was reading for his final and pass, I, of course, as a neophyte and beginner, and he nearly drove me to despair by his exact and thorough knowledge of his work. He chose obstetrics as his more special study, and obtained permission to put up a notice in the Out-patients' Room that notes for such attendance could be obtained free by applying to him. As a matter of fact, he got plenty of applications, thus completing his extensive and most thorough acquaintance with this subject, and soon numbered his thousand cases.

Having obtained his M.R.C.S. and L.S.A., he started practice in the east of Bristol, and applied for the post of Medical Officer

to the Eastville Poor Law establishment, to obtain which he took the L.R.C.P. of Edinburgh, and remained as their valued and respected officer until his retirement upon pension. Scarcely, however, was it a period of peace, for his incessant and Homeric differences with the clerk became notorious, and occasionally even the Guardians were made acquainted with Bernard's opinions "very forcibly." Subsequently he obtained plenty of practice, especially in midwifery, where his services became very widely known and valued.

But apart from medicine he was a very many-sided man, and took up optics, music, whist and bridge, and whatever he touched he mastered — no mere superficial acquaintance satisfied him. For years he played the French-horn in George Riseley's orchestra, which is to say that he "knew the horn," and it was only the loss of his front teeth which forced him to abandon it, which he never ceased to regret. For the last two years of his life he suffered much pain, borne with exemplary patience.

LIONEL SHINGLETON SMITH.

THE news of the death of Lionel Shingleton Smith, at the early age of 43, which occurred at Brecon on August 21st, came as a great shock to his many friends in Bristol. It was generally known that he had sustained a compound fracture of the leg as a result of a motor collision on July 16th, but such a tragic ending was unexpected. It was at first hoped that it would be possible to save the limb, but septic complications supervening, amputation was performed on August 9th. A temporary improvement only resulted, death finally resulting from pyæmia.

Lionel Shingleton Smith was the second son of Dr. R. Shingleton Smith, of Clifton, his younger brother, and fellow-student, Frank, having been killed on active service in Mesopotamia. Lionel was educated at Clifton College, St. John's College, Cambridge, and University College, Bristol, taking the degrees of B.A., M.B., B.C. (Cantab.), and the diplomas of M.R.C.S., L.R.C.P.

After qualification he held resident appointments at the Bristol Royal Infirmary, and was later House Surgeon to the South Devon and East Cornwall Hospital, Plymouth. At the termination of this appointment he set up in practice at Brecon, being appointed Honorary Physician to the Brecknock County and Borough Infirmary. Here he remained until death cut short his life's work.

A most lovable character, naturally of a cheerful and sociable disposition, Lionel Smith was a very popular student. That absolute unselfishness, which was the keynote of his character, endeared him to all with whom he came in contact. He always took the keenest interest and entered whole-heartedly into what was going on about him, whether work or play. Nothing was ever too much trouble for him, his patients from all classes finding him always ready and eager to do his utmost.

By his life of service and good-fellowship he has built for himself that most beautiful of all monuments, a place in the loving memory of his fellow-men.

Our deepest sympathy goes out to his widow and his four young children, to whom he was not only a father but a companion and playmate; and also to his father, Dr. R. Shingleton Smith, for many years the Editor of this *Journal*, in this his new sorrow.

A. J. W.

Local Medical Notes.

THE INTERIM REPORT OF THE CONSULTATIVE COUNCIL UNDER THE MINISTRY OF HEALTH.

Lord Dawson's Visit.—On July 9th Lord Dawson, Chairman of the Consultative Council, was the chief guest at a luncheon at the Royal West of England Academy, when upwards of eighty representatives of the committees of hospitals and other medical institutions in the Counties of Bristol, Somerset, Wilts, Devonshire, Gloucester, etc., accepted the invitation of the President of the Bath and Bristol Branch of the British Medical Association and Mrs. Watson-Williams. Of those invited to meet Lord Dawson the following may be mentioned from :—

Bristol.—The Right Hon. the Lord Mayor, the Very Rev. the Dean of Bristol, the Presidents, the Chairmen of Committee, and Hon. Treasurers of the Royal Infirmary, General Hospital, Royal Hospital for Children, the Bristol Eye Hospital, the Homœopathic Hospital, the Master of the Society of Merchant Venturers, the Vice-Chancellor, Pro-Chancellor, and Pro-Vice-Chancellor of the University, the Chairman of the Education

Committee, the Hon. Sec. of the Bristol Branch of the Red Cross, Dr. Shingleton Smith, Mr. F. R. Cross, and many other representative medical practitioners.

Cardiff.—The Right Hon. the Lord Mayor and Dr. Maclean.

Hereford.—The Mayor and the late Mayor.

Bath, Taunton, Exeter, Salisbury, Gloucester, Cheltenham.—The Presidents and other representatives of all the hospitals, and the Medical Officers of Health of Bristol, Bath Rural, Gloucester, and Wilts, and many others.

Dr. Watson-Williams, in proposing the toast of "The Consultative Council," said that the presence of so many of the lay representatives of hospitals as well as medical colleagues to support him in welcoming Lord Dawson was indicative of the profound interest aroused on all hands in the Interim Report, and of the earnest desire of those who were responsible for organisations and hospitals for the relief of the sick, to take part in developing schemes for improving on the means which hitherto had served such a useful purpose. The Consultative Council was set up to advise and to assist the Ministry of Health, and in affording the medical profession and those whose work lay in the administration of Hospitals the opportunity of considering the Interim Report, they doubtless hoped for assistance in framing their final conclusions and report. It was interesting to note that it was the British Medical Association which initiated the movement culminating in the creation of a Ministry of Health, and it was in the West of England that this movement had its birth. Dr. Rumsey, of Cheltenham, by a paper read in 1867, led to the formation of a Committee, and as a result a deputation of the British Medical Association, including Dr. Symonds of Bristol and others from Bath and Cheltenham, waited on certain members of the Government in 1868 to ask for a Royal Commission on the chaotic state of Public Health Administration. On June 6th, 1868, the *British Medical Journal* urged the "appointment of a Minister of Health," and for fifty years the British Medical Association reiterated its plea, till at long length we now had the Ministry.

Lord Dawson, in replying, referred to the great movement in the early eighteenth century for the establishment of voluntary hospitals, Bristol being one of the first cities to rise to the occasion with the setting up of the Bristol Royal Infirmary. A new chapter was opening in the story of the hospitals of this country, and the West of England was once more in the forefront. Already in the County of Gloucester a scheme had been laid down by the Medical Officer of Health, Dr. Middleton

Martin, whereby the general practitioners were brought into relation with primary hospitals, and these primary hospitals were brought into relation with the secondary hospitals in the large towns.

The provision for the health of the people in hospital or otherwise was demonstrably inadequate. It needed not to be swept away but to be expanded and adjusted. Hospitals were inadequate because the population had grown more rapidly than the hospitals had. Again, recent progress in medicine demanded increased institutional treatment, which the present hospital system was not elastic enough to supply. The need was not merely one of providing more hospitals, but of the careful grading and linkage of those in existence.

The disability from sickness was a great weight upon the nation. In 1916 sickness benefit in England for men alone amounted to nearly 3½ millions sterling, representing 6,800,000 weeks of sickness and consequent withdrawal from employment. The average annual loss due to sickness and disablement in the case of both sexes for the years 1914–16 worked out at 270,000 years, and in these estimates all light sickness (of shorter duration than four days) was excluded, as well as all maternity cases and cases in sanatoriums. If an adequate health organisation existed these figures should at least be halved. For the full development of such an organisation the cost would be too great at present, and at the moment all that was asked was that stock should be taken of the position, that a review should be made of what existed at present compared with what should exist, and that a scheme be devised in outline sufficient to reveal the plan according to which the health organisation of the future should be shaped. There was already a patchwork of medical services—tuberculosis, venereal, and so on—which had come each in response to an urgent demand, and not as the result of any ordered policy. The time had come to consider the whole position and decide upon the lines of development, and then set to work cautiously and tentatively to build up the fabric of a medical organisation to approximate national needs. The Consultative Council was quite prepared to find that such a fabric could only be set up bit by bit. Certain principles must be laid down, but they must be principles which should be capable of some immediate applications, and he hoped that one such application might be made in Bristol. The burden of the report was simply this: the provision of fabric and equipment, together with freedom of action for doctor and patient. The general practitioner of the future must be more closely identified with preventive medicine and have access to the necessary equipment.

The full report of Lord Dawson's speech will be found in the

British Medical Journal for July 17th, but we may here draw attention to Lord Dawson's remarks anent the tendency for certain infirmaries to be handed over to the municipalities: "A municipalised service was one step forward to the nationalisation of medicine, and that would be a disaster alike to the medical profession and the public."

The Lord Mayor of Bristol proposed the health of representatives from neighbouring towns and counties; and the Lord Mayor of Cardiff, in responding, supported the proposals set forth by Lord Dawson, but expressed the hope that the scheme would not be worked by existing local authorities—a separate *ad hoc* body should be created in the various districts.

A meeting of the Bath and Bristol Branch of the British Medical Association, held in the Council Chamber of the University, followed immediately after the luncheon and was largely attended.

The President, Dr. Watson-Williams, called on Lord Dawson, who more fully explained the proposals of the Consultative Council. It endeavoured to make the preventive and curative sides of medicine meet in the general practitioner, who must be looked upon more and more as the guide in matters of health of the residents of his district. The director of the communal clinic of the primary health centre should be a man whose practice was in the district; his post should be a part-time one, paid on a time basis. This was the alternative to a whole-time salaried service. Training would be required for such a post, but this simply meant an extension of postgraduate instruction. As methods of investigation and treatment of disease became ever more complex the more did the insufficiency of the general practitioner's equipment become apparent. Nothing astonished him more as a consultant than the excellent work which was done by men under poor conditions. One of the vital parts of the organisation now foreshadowed was the full participation of the general practitioner in the communal equipment available at the health centre. The ideal primary health centre would have a certain number of rooms available for the examination of patients; there would be X-ray provision, particularly for screen examinations, also facilities for blood testing, and so on.

Dr. J. Middleton Martin (Medical Officer of Health for Gloucestershire) gave an account of the plan developed in that county. While it was more or less a simple matter to provide in the towns the special services now required, the matter was more complicated in country districts. In Bristol, for example, there were 13,000 persons to the square mile, while in Gloucestershire, not one of the most sparsely-populated counties, there

were only 268. It was out of the question to provide special services adequately for a scattered population on the same lines as for a compact population. It would be disastrous to the medical profession if continually branches of work were taken away from the general practitioner; nor would it be good for the community, because the preventive side of public health required a knowledge of the circumstances of the local community and the homes of the people, and who possessed this knowledge to the same extent as the general practitioner? Therefore the aim in Gloucestershire had been to bring the general practitioner into relation with what Lord Dawson called primary health centres. The attempt was made to develop the present communal services in centres where the local practitioners could deal with the cases. It would be mainly an out-patient service, but a certain number of beds were also wanted. The stations would be of a very simple character, but capable of development. The direction of these centres was an important consideration. There had been complaint in the past that medical schemes were under lay direction. Medical matters were so technical that there must be medical direction of such services, and from a plan already in operation in Cheltenham he had conceived the idea of setting up a medical advisory committee, composed, in the case of Gloucestershire, of the general practitioners in charge of the out-stations and the consultants at the hospitals. All medical matters would be referred to that committee, which would be the governing body in medical matters. He did not suggest that all difficulties had been overcome, but sufficient advance had been made to prove the practicability of the idea. As for finance, the complete scheme was not too expensive to be carried out at the present time. The money had been found in Gloucestershire by pooling the sums available for the separate schemes, and in this way sufficient money was found without increasing the estimates.

These introductory speeches were followed by a very interesting and fruitful discussion, to which Drs. M. Milligan (Bath), Bristowe (Wrington), Norgate (Bristol), Gordon (Exeter), Myles (Bristol), Newman Neild (Bristol), Luckham (Salisbury), Maclean (Cardiff), Flemming (Bradford-on-Avon), took part.

The discussion was briefly summed up by the President, who conveyed the thanks of those present to Lord Dawson for his address. Lord Dawson replied to various points raised in the course of the discussion, and emphasised particularly that the report of the Council did not aim at a State Service, he regarded their proposals as the sole alternative to a State Service. He stated that the Ministry of Health did not desire a bureaucratic control, but aimed at a health service of which

the Ministry would be the inspirer, controller, and co-ordinator—that was all.

For a fuller report of this and the previous meeting reference should be made to the *British Medical Journal* for July 17th, 1920, upon which we have drawn largely for our notes.

University of Bristol.—Students of the University have recently passed the following examinations :—

UNIVERSITY OF BRISTOL. M.B., Ch.B.—*First Examination :* A. F. Alford, K. F. Alford, G. W. R. Bishop, O. J. P. Bollon, H. W. Brassington, D. E. Crellin, C. H. Durnford, F. S. Dymond, S. J. H. Griffiths, C. I. Ham, C. F. Hayhurst, H. F. Hollingshead, J. A. Hooker, C. T. Hyatt, C. F. R. Killick, A. H. Lowther, R. E. Lucas, A. C. Lysaght, E. May, W. S. Ormiston, Y. de la Pasture, M. P. Posthuma, D. C. Prowse, L. G. Robertson, H. Roger, H. J. Satchwell, R. E. Satchwell, J. F. Southward, G. M. Terrell, M. M. Te Water, W. Turner, T. W. Ware, T. M. White, K. M. Wilmore.

Biology only : S. P. Taylor, C. F. Wilson.

Final Examination, Part I. : W. H. Royal; *Part II. :* T. H. A. Pinniger.

D.P.H.—*Part I. :* F. V. Cant, A. D. Fraser. *Part II. :* C. H. Hart, S. H. Kingston, A. D. Symonds.

B.D.S.—*First Examination :* E. K. Tratman.

Zoology (completing examination) : H. A. Jones.

Third Examination : G. N. Season.

DIPLOMA IN DENTAL SURGERY.—*First Examination :* V. E. Allen, H. N. V. Barnes, A. S. C. Boulter, A. H. Butcher, R. G. Butterworth, L. H. Challenger, H. P. Evans, G. Holt, H. C. Hopes, K. A. Hunt, A. R. Hutchings, F. C. G. Lewis, J. C. W. Lewis, E. H. Longney, R. March, C. G. Payne, H. W. Pidgeon, M. Ritblat, J. R. Ritblat, G. G. Royal, C. E. Smith, W. H. Simpkiss, K. M. Watson, F. C. Winter.

Third Examination : W. Bayly, L. C. Bodey, E. E. Lewis, J. C. L. Phillips. *Final Examination :* E. J. Tucker.

M.R.C.S., L.R.C.P. LOND.—H. V. Jackson.

D.P.H. OXON.—*Part I. :* M. S. Baker, C. Kingston.

L.S.A.—*Forensic Medicine :* J. L. Delicati.